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Welcome Back

The 1982/83 Academic Year has just begun and once again, on behalf of the UTCS staff, I would like to extend our warmest welcome to you. We have had a rather eventful summer, and I would like to report the following highlights.

One of the significant events was the signing of a Partnership Agreement between IBM Canada Ltd. and the University of Toronto. Under the terms of reference of this Agreement, IBM will loan the University an IBM 3033 processor with appropriate peripherals, software, maintenance, and 180 terminals for three years, after which the equipment will be donated to the University.

The UTCS Review Committee engaged in extensive deliberations and considerations in the negotiation of the Agreement. Through this Partnership and the planning initiative of the Review Committee, we are able to greatly enhance the University's directions towards interactive computing access for both students and researchers. Initially, the new machine will provide 140 terminals for introductory computing courses, using a version of the Bell Laboratory operating system UNIX commonly used in many university facilities. The specific version is called UTS and will provide the students with the facilities to compose programs for submission to High Speed Job Stream. As time and resources permit, the roles of the existing and new machines will be switched, so that the new machine will ultimately provide computing services for researchers. It is expected that the new machine will allow us to significantly enhance research facilities by providing interactive services coupled with special purpose research tools such as the special CADAM (Computer Augmented Design and Manufacturing System) terminals and software provided to us by IBM as part of the Partnership Agreement.

This Partnership has also made possible the freeing-up of the LIBRA "A" VAX machine as a dedicated resource for the Engineering students. At the same time, the VAX 780, originally intended for LIBRA "B", will be added to the existing VAX 750 UNIX complement at the Engineering Annex. This, in effect, will more than double the Computer Science specialists' native UNIX instructional facilities.

Throughout the summer, the UTCS staff have been working hard to implement these new instructional computing facilities which we trust to be a true improvement. There have been extensive activities in relation to systems, communications, and site preparations; the latter involving a high level of co-operation and effort from the Physical Plant Department. All the planning and installations had to be achieved within very tight time constraints and we regret having to cause some inevitable temporary inconvenience to you during the summer.

Thus, as of this Fall Term, the following student computing services will be available:

Introductory Undergraduate Facilities:

- 68 terminals running UTS at Robarts Library (Room 1061A);
- 50 terminals running UTS at ASUT, Sydney Smith Hall (Rooms 1071, 1073);
- 22 terminals running UTS at Victoria College (Room 012)
(to be operational sometime in October);
- keypunches are retained in both the EUT site (Engineering Annex, Room 107) and ZUT (Ramsey Wright building, Room 107).

continued...

Welcome Back continued**Computer Science Specialist Facilities:**

- 32 terminals running native UNIX (Engineering Annex, Room 203);
- 34 terminals running native UNIX (Engineering Annex, Room 201).

Public Graduate/Research Facilities:

- 16 terminals and 8 hard-copy DECwriters at EAT site (Engineering Annex, Room 103);
- 9 terminals and 5 hard-copy DECwriters at AST site (Sydney Smith Hall, Rooms 2104 and 2105);
- 6 terminals at Physics site (Burton Tower, Room 1202).

Scarborough/Erindale College Facilities:

- There will be approximately 28 terminals running LIBRA, and 7 terminals running native UNIX at each college site. In addition, there will also be 12 terminals downtown at the Engineering Annex (Room 103) running LIBRA, to be used by the students from the two remote campuses.

Education Facility:

- There will be ten IBM 3101 terminals in addition to a variety of special purpose equipment. This facility has been relocated to Room 221 in McLennan Physical Labs. As in the past, these premises will be available for general use when not being used for teaching courses.

Another significant event that took place was the change in UTCS services and the corresponding redeployment of our human resources. This was made necessary by the University requirement of our achieving a budget reduction and in response to the University hiring freeze. UTCS Management has moved to adopt a rational redeployment scheme rather than reallocate staff in an *ad hoc* manner to cope with the large number of vacancies throughout the organization. It is the intent of UTCS Management to define its services in a framework that is consistent with our interpretation of the directions outlined in the "Policy on the Use and Development of Computer Services at the University of Toronto", as presented by Prof. Nowlan to the Governing Council.

Specifically, we have attempted to create an organizational structure that would allow for a more visible costing and charge-back mechanism, whereby the University Administration can better identify and address funding issues. It is also our resolve that we should focus our staff resources and remove some services, rather than weaken them to ineffectual levels. Needless to say, the reduction in staff complement and services will have a definite impact on our level of support to you. Some major changes include the following:

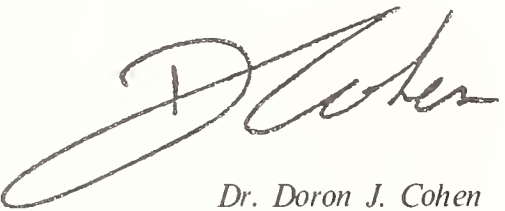
- the Programming Services is being phased out and members of the Group redeployed. We hope to provide a level of maintenance support with our current customers;
- the DEC-10 service will be unattended between 4 p.m. and midnight;
- we will be drastically reducing student advising by our staff at most sites;
- the Text Entry Service is being phased out and members of the Group redeployed;
- the previous CSR role has been discontinued. The operational aspects of the centrally-connected sites will be with the Operations Group, while some of the advising aspects will be centrally provided, though on a reduced basis. The consulting and marketing aspects will be handled by a new group dedicated to these activities, as well as to the UTCS Information/Library and Publications functions;
- card stock and student handout materials, which have been available at our sites at no cost in the past, will now be sold through the University of Toronto Textbook Stores.

continued...

Welcome Back continued

I also wish to inform you of a third major event that took place this summer. Effective as of August, the UTCS Information Service and the Computer Science Library have been amalgamated to become the joint University of Toronto Computer Library, located in Room 206, Engineering Annex. We believe this combining of resources is a positive consolidation of services to all of you.

Some of the benefits of the above-mentioned activities will take time to materialize, and there will be growing pains and difficulties associated with changes and the reduction of services. However, we are confident that our staff's efforts and your support will enable us all to meet the requirements of the coming year and to build towards better computing services to meet future needs.

A handwritten signature in dark ink, appearing to read 'D. Cohen', with a large, stylized initial 'D'.

Dr. Doron J. Cohen

The Effects of Constraint on Advisory Support

The redeployment of UTCS resources carried out to effectively meet fiscal constraints has impacted the traditional advising services as it has other services. In the past, UTCS has been able to provide both centralized and distributed advisory and consulting support. During this academic year, all advisory support will be substantially reduced at the St. George sites; while more extensive consulting will be unavailable at these locations.

Academic Advising

All UTCS advising and consulting activities for research, graduate, and related support activities will be coordinated by a Central Advising Office. Users needing assistance can contact the Central Advising Office by phoning 978-HELP. The advisors on duty will endeavor to answer questions about program and system related problems such as error messages and damaged files.

In more complex cases it may be necessary for the advisor to schedule a return call or to arrange a visit with either an advisor or a specialist. Due to the decreased number of advisors available, when a visit is required we would request that an appointment be set up in advance. We regret this inconvenience; however, we believe that if visits are prearranged, we will best be able to advise our community with minimal disruption to all.

The Central Advising Office can also be contacted by electronic mail via any interactive service which supports a mail system (TSO, DEC-10, and UNIX). Users can ask for help by sending mail or messages to the account ADVISOR. In addition, DEC-10 users who have questions which are more appropriately handled in a public forum are

encouraged to make use of the GRIPE facility.

The Central Advising Office will also be responsible for supervising the advising services in the Engineering Annex and Sidney Smith locations. The Annex will run a drop-in advising service from 1:00 pm to 5:00 pm on weekdays (holidays excepted). There will be a similar service operating in Sidney Smith from 9:00 am to 5:00 pm.

Student Advising

Student advising has not been funded to the same degree as in past years and hence a reduction of UTCS service to this area is inevitable. It is intended that students requiring assistance will increasingly make use of their tutors who are better suited to understand the educational objectives of the students' exercises than are UTCS employees.

During the upcoming year the Faculty of Arts and Science has provided UTCS with funds to provide assistance to their students computing in Sidney Smith from 9:00 am to 5:00 pm during the week. Advisors at the Engineering Annex will also assist students with their problems from 1:00 pm to 5:00 pm on weekdays (holidays excepted). However, at the latter site, academics and their support staff will take priority over student advising.

We thank you in advance for your cooperation with us while we restructure our advising services.

*Don Gibson
Alex Nishri*

Farewell to Programming Services

After a long and intrepid history with UTCS, the Programming Services Group is being phased out. As UTCS trims its services in response to financial constraints, it has become necessary to terminate the activities of our group and redeploy its members to core areas of computing service of UTCS. Sally Holton, Helen Mariano, Allen Ng, and I will be assuming new positions within UTCS during the coming weeks as we wind down our Programming Services operations.

Originally called Contract Programming, the group has existed since the early 1970's in a variety of forms. "Graduates" of the group have gone on to become CSR's, supervisors, and managers within UTCS. We have successfully developed small, medium, and large scale systems for various University departments as well as hospitals and other external clients. We have done surveys, graphics, statistics, accounting, and

record keeping applications in all shapes and sizes.

Over the next few weeks we will be discussing the status of maintenance support with our current customers, trying to make the transitional period a smooth one. At present we are no longer initiating any activities.

I would like to take this opportunity to express my appreciation for all the good work done by the Programming Services staff and wish them the best of luck in their new positions.

It has been a rewarding experience working with all of our customers, and we wish you continued success in the future.

Paul Roth

Zoology and Engineering Terminals

ZUT/EUT

The Zoology Undergraduate Terminal (ZUT), located in the Ramsey Wright Building, Room 107, and the Engineering Undergraduate Terminal (EUT), located in the Engineering Annex, Room 107, are the 2 remaining sites with card keypunches. These keypunch sites are retained primarily as a fall-back in case of problems with UTS at Robarts, ASUT, or Victoria College.

ZUT has a card reader and printer with 20 keypunches to support HSJS and GPJS. EUT has a card reader and line printer with 37 keypunches for the same purpose. EUT also has 12 terminals in Room 103 for LIBRA, to be used by students from Erindale and Scarborough when they are on the downtown campus.

Various manuals and books are available for reference at both sites. Limited advising is available at EUT. (See article on "The Effects of Constraint on Advisory Support" in this issue.)

EAT

Along with housing undergraduate keypunch facilities, the Engineering Annex Terminal (EAT) also provides access to interactive computing through 16 terminals and 8 DECwriters which are located in Room 103. The terminals are connected to PACX and can access any UTCS service.

EAT also has 2 self-service printers, an interpreter, a card reader, 5 keypunches, and a GOULD 5200 plotter. Jobs requiring special forms are printed at McLennan Physics, Room 367.

continued...

Zoology and Engineering Terminals continued

Computing Disciplines Facility

In addition to the other facilities available at the Annex, the second floor of the Engineering Annex, Rooms 201 and 203 are

the locations for the Computer Science specialist facilities. These facilities include 66 terminals connected to Berkeley UNIX on a VAX 11/750 and 11/780. (For more details see the article "Computing Disciplines Facility" in this issue of *COMPUTER-NEWS*.)

AST/ASUT

Computing facilities at the Arts and Science Terminal (AST) and the Arts and Science Undergraduate Terminal (ASUT) have undergone some major changes over the summer.

The first major change for undergraduate students is the disappearance of card keypunches. In their place, 50 interactive terminals have been installed in Rooms 1073 and 1071 as part of BICS (Basic Interactive Computing Services) on the IBM 3033. An additional IBM 1403 printer has been added to Room 1071 and we hope that the turnaround for submitted jobs will be improved.

In each room a special terminal is designated for ORACLE, which will assist students who encounter PL/C or WATFIV program errors. The physical layout of AST has not changed since last year. Batch computing is supported by a card reader and line printer with a number of keypunches. There are 9 interactive terminals and 5 hardcopy terminals connected to UTCS PACX.

Advising will be available on-site between 9:00 am and 5:00 pm on weekdays (holidays excepted). (For more details on advising, see the article "The Effects of Constraint on Advisory Support" in this issue).

Physics Terminal

The Physics Terminal is situated in Room 1202 and 1203B in Burton Tower on the St. George campus. Batch computing is supported by a card reader and line printer with 6 keypunches. There are 3 interactive terminals and 2 hardcopy terminals connected to UTCS PACX. Some are equipped with both ASCII and APL character sets. It is anticipated that the number and variety of interactive terminals will continue to increase throughout the year.

The Physics Terminal is operated almost

entirely on a self-service basis. Because of limited space and the demand on equipment and facilities, use of this site is restricted to faculty, staff, and graduate students.

A wide selection of computing manuals for reference (e.g., a complete set of NAG and IMSL library manuals), can be found at the Physics Terminal. If you have any questions or computing problems, please contact the Central Advising Office at 978-HELP.

Scarborough College

During the past year the computer centre, located on the sixth floor of the Science Wing, has undergone a number of changes. Last fall a UNIX service for teaching purposes was added and included 4 terminals plus a printer connected to the Computing Disciplines Facility. In December 1981, a VAX 750 was installed with 24 terminals as part of the LIBRA service for undergraduate teaching purposes. During the summer we added 4 additional terminals bringing the total available for student use to 28.

The Control Data printer and card reader have been replaced with equipment that is connected directly to the VAX but still allows for batch usage (i.e. keypunch cards). Because of the introduction of LIBRA, the major demand for keypunches has been removed and we have retained only 5 of the original 18. Although these keypunches will be available for some time, it is recommended that LIBRA be used for all teaching purposes. If you are using cards for non-teaching projects, you might consider discussing alternative methods with either me or Shirley Manimaletu, who is the operator/advisor at the college.

In addition to the above changes, we have added 3 terminals to the public terminal area and moved the user work area from the public terminal area into a separate room with work space available for approximately 50 people.

Hardware and services available at the centre include:

- **LIBRA Services** - 28 terminals and two printers connected to the VAX 750 with communications to the IBM mainframe downtown.
- **Batch Services** - a card reader and printer connected to the IBM via the VAX. There are also 5 keypunches.
- **UNIX Services** - 7 terminals and one printer for Computing Disciplines Facility access.
- **Public Services** - 7 terminals and 4 hard-copy terminals for accessing other UTCS services.

The computer centre supports all courses involving computing as well as other academic and administrative computing at the college and provides access to all computing services offered by UTCS.

If you have any questions about the new equipment or need help with any of your computing, please feel free to drop by Room S628-A or call 284-3173.

The normal hours of operation at the centre during the fall and winter terms are:

Monday - Friday	9:00 am - 12:00 am
Saturday	10:00 am - 5:00 pm

There will be some changes to these hours throughout the year due to holidays, exam and reading weeks, etc. These changes will be posted in advance.

Bob Blackburn

Erindale College

The Erindale Computer Centre has seen a number of changes over the past year including the installation of a VAX 780. As part of a joint research and teaching venture, the VAX 780 has allowed us to remove all but 2 of the 20 keypunches offering in return a vastly improved research and instructional facility.

Services available for the coming year will include:

- **LIBRA Services** - 28 terminals located in Rooms 2045, 2046, and 2040.
- **UNIX Services** - 7 terminals situated in Room 2005 for undergraduate student use.
- **Public Services** - 14 dial-up terminals located

in Room 2047 offering access to all UTCS services.

- **Research Services** - research users have the added choice of local processing on the VAX 780.

Hours of service at Erindale are:

Monday - Thursday	9:00 am - 10:00 pm
Friday	9:00 am - 5:00 pm
Saturday & Sunday	12:00 pm - 6:00 pm

If you have any questions on conditions of availability and access please feel free to drop by Room 2043 or call 828-5311.

Peter Wall

Fall Short Courses

UTCS offers a number of short, non-credit courses on the use of various products and services that we support. They usually last from five to ten hours and, depending on the course, may be for one full day or spread out over several days.

The courses are available to customer account holders and to those who have access to accounts. Those interested in taking these courses must register for them in advance and pay a \$10.00 registration fee, payable in cash or non-computing appropriation, one week before the first meeting. Registrants are also required to hold a valid Service Access Code (SAC) for use during the course. Registration and fees are handled by:

Education Facility Coordinator
Room 217, McLennan Physics
978-4565

If less than 5 people register for a course the course may be cancelled, so please register early. Also, depending on the

demand, these and other courses may be available again later in the year. Anyone interested in credit courses should contact the Department of Computer Science at 978-6360. The following is a list of courses which are planned for the fall.

DB101 - Introduction to Database Concepts

This introductory course is designed for both those with no background in database concepts or database management system as well as those who are familiar with these concepts but would be interested in a fresh view.

Major topics of discussion: Definition and use of a database and database management systems; overview of hierarchical, network, and relational models; relational model and terminology; data dictionary; security and integrity of data; and database design.

Date: October 6 - 7, 1982
Time: 9:30 am - 12:00 noon

continued...

Fall Short Courses continued

Place: McLennan Physics, Room 221
Instructor: Paul Roth, 978-8701

DEC101 - DECsystem-10 Novice Users

This is an introductory course designed to provide novice users with all the basic information required to start using the DEC-10.

Major topics of discussion: Terminal input/output capabilities (provided by the system), login/logout, disaster handling, file management and handling, how to get hardcopy, how to reclaim lost files, and how to get help on the system. There will not be any detailed discussion of text editors or formatters.

Date: September 21, 1982
Time: 9:00 am - 12:00, 1:00 pm - 3:00 pm
Place: McLennan Physics, Room 221
Instructor: Corot Reason, 978-6601

DEC201 - DECsystem-10 Assembler

This course will consist of five lectures aimed at discussing MACRO-10, the assembler language used on the DEC-10. This course is intended for experienced DEC-10 users only. (See DEC101.)

Major topics of discussion: Hardware considerations, DEC-10 instruction set, assembler formatting and pseudo-operations, monitor calls, and debugging techniques.

Date: October 18 - 22, 1982
Time: 10:30 am - 12:00 noon
Place: McLennan Physics, Room 221
Instructor: Dr. Edmund West, 978-4085

DEC301 - DECsystem-10 Advanced Users

This course will discuss the DECsystem-10 in some detail. The object of the course is to provide information that would be useful to most users over the long term. Emphasis will be on details not likely to be of

interest to those users who are mainly concerned with text processing rather than programming. This course is only for users who have some experience with the DEC-10 and is not intended for novice users. (See DEC101.)

Major topics of discussion: System structure and components, little known features, Monitor Interpreted Commands (MIC), file system details (including the file daemon), tape use and file backup/restore, a basic intro to TECO, the mail system, and IBM RJE. Also included will be a thorough examination of all monitor commands and tools for programmers.

Date: October 12, 1982
Time: 9:00 am - 12:00, 1:00 pm - 3:00 pm
Place: McLennan Physics, Room 221
Instructor: Corot Reason, 978-6601

JCL101 - JCL For Beginners

This course is intended as an introduction to IBM JCL (Job Control Language). Users taking this course will be expected to have some knowledge of a programming language or experience with a computing application. Examples and assignments will assume job submission via the card reader.

Major topics of discussion: Use of JOB, EXEC, and DD statements.

Date: September 13 - 17, 1982
Time: 3:00 pm - 4:00 pm
Place: McLennan Physics, Room 221
Instructor: Rob Janes, 978-2670

SAS101 - Introduction to SAS

This is an introductory course that places a heavy emphasis on concepts and the basic approach to statistical computing. Some elementary JCL will be covered and enough SAS will be taught to create a file from 'simple' raw data for preliminary analysis. Some reference will be made to some of the features in SAS.

Major topics of discussion: Definition of

continued...

Fall Short Courses continued

terms (i.e., variables, observations, and missing values), creation of files from raw data, data cleaning, and descriptive statistics.

Date: September 13 - 17, 1982
Time: 10:00 am - 11:00 am
Place: McLennan Physics, Room 221
Instructor: Diane Mitchell, 978-5128.

This course will be offered again October 4-8, 1982 from 2:00 pm - 3:00 pm in the same location.

SAS201 - Intermediate SAS

This course is a continuation of **SAS101**. Those wishing to take the course should have completed **SAS101** or be familiar with SPSS, BMDP, SAS, or a programming language such as PL/1 or FORTRAN. This course will discuss in greater detail the features of SAS that are only touched on in **SAS101**.

Major topics of discussion: Input from 'not so simple' data, report writing using SAS, dataset manipulation (splitting, updating, and merging), and more complicated procedures.

Date: October 18 - 22, 1982
Time: 3:00 pm - 4:00 pm
Place: McLennan Physics, Room 221
Instructor: Diane Mitchell, 978-5128

SAS/GRAPH101 - Introduction to SAS/GRAPH

This course is designed to teach users the basics of SAS/GRAPH and how to use the various graphics devices which are available at the U of T. It is intended for those who have prior knowledge of SAS. (See **SAS101**.)

Major topics of discussion: Special statements required and their options, a description of some of the SAS/GRAPH PROCs which are available, and hardware devices and their options.

Date: September 27 - 29, 1982
Time: 3:00 pm - 4:00 pm
Place: McLennan Physics, Room 221
Instructor: Dianne Mitchell, 978-5128

TXT103 - Text Processing on UNIX for Beginners

This introductory course is designed to teach users the basic editing and formatting capabilities of the UNIX system. It is a hands-on course and assumes no familiarity with either computers or text processing.

As this is a hands-on course, registrants must arrange to set up a UNIX account prior to beginning the course, by contacting the UTCS Accounting Office at 978-8703.

Major topics of discussion: Use of the editor (ed) commands, formatting using "ms", manipulation of files and directories, and an introduction to some of the more relevant UNIX programs.

Date: September 27 - October 1, 1982
Time: 9:00 am - 12:00 noon
Place: McLennan Physics, Room 221
Instructor: Dawne Smith, 978-4548

TXT203 - Introduction to TBL

This brief course introduces users to the UNIX program TBL which interprets formatting commands and options into a variety of table layout designs and provides output on phototypesetting devices. This course is intended for user who are familiar with UNIX text processing. (See **TXT103**.)

As phototypesetting is paid for in unsubsidized funds (i.e., real money), it is necessary to arrange for typesetting to be made available on your UNIX account prior to beginning the course by contacting the UTCS Accounting Office at 978-8703.

Major topics of discussion: Column layouts, options, formatting commands, and use of the Varian and CAT/8 phototypesetting

continued...

Fall Short Courses continued

output devices.

Date: September 23 - 24, 1982

Time: 9:00 am - 12:00 noon

Place: McLennan Physics, Room 221

Instructor: Dawne Smith, 978-4548

WYL101 - Introduction to WYLBUR

This introductory course will present an overview of WYLBUR concepts. Students, through hands-on practice, will be taught data collection, batch job submission, and output retrieval. A valid Wylbur account and password and knowledge of at least one

batch processor (FORTRAN, PL/1, etc.) is required.

Major topics of discussion: Data collection and manipulation, file handling, text editing, the 'DO' EXEC, and how to get help.

Date: September 20 - 24, 1982

Time: 3:00 pm - 4:00 pm

Place: McLennan Physics, Room 221

Instructors: Rob Janes, 978-2670

Steve Younker, 978-6346

Harriet Cooper

UTCS Hardware Changes

The University/IBM Partnership established this summer has resulted in the installation of a major new system, comprising a 3033/U16 processor, 32 disk drives and 4 Series/1 communications processors.

In order to accommodate the new equipment, many changes within the machine room had to be effected. No system escaped in this complicated series of moves, and it is to the credit of UTCS and vendor staff that users felt relatively little impact.

Among the more visible changes are:

- IBM 3780 to replace CDC RJE workstation at Physics Terminal;
- additional IBM 1403 printer installed at Arts and Science Undergraduate Terminal;
- CDC RJE workstation to replace IBM/Paradyne equipment at Zoology

Undergraduate Terminal;

- Paradyne printer installed at Victoria College;
- DEC VAX 11/780 installed in addition to the VAX 11/750 in the Engineering Annex to support Computing Disciplines Facility.

Other recent changes have been the consolidation of special forms printing at the McLennan Labs site and the removal of the IBM 2400 tape drives (7 track and 9 track 800 bpi).

The above changes have increased the University's computing capacity significantly and UTCS will endeavour to provide a continued satisfactory level of service to all its users.

Bob Chambers

Tape Changes

The IBM 2400 tape drives which supported, 9 track 800 bpi and 7 track tapes are no longer available on the academic system. They were removed July 5, 1982. Although 7 track tapes cannot be supported; 9 track 800 bpi tapes will be converted on demand to 9 track 1600 bpi.

Arrangements for conversion can be made with the tape librarian (McLennan Labs,

Room 367, 978-7319). An output tape must be supplied for the conversion of a "foreign" tape. Turnaround time can be up to 2 days under normal conditions. This service will be free of charge for a limited time in order to facilitate the initial conversion of existing tapes.

Bob Chambers

Special Forms Consolidation

UTCS has consolidated the printing of special forms to a central site in McLennan Physical Laboratories, located on the third floor of the north building in Room 367. The building can be entered from either 60 St. George Street or 255 Huron Street.

The consolidation of special forms printing will have the following impact on UTCS users:

1. All PRINT jobs with an output destination of CENTRAL will be printed in McLennan Physical Labs. This will include jobs printed on the standard forms, special forms, and any job requiring more than 15,000 lines of printed output.
2. All confidential output will be filed inside the machine room in McLennan Physical Labs. There will be no facility at the Engineering Annex for filing confidential output.
3. All PUNCH output will be punched and filed at McLennan Physical Labs central site.
4. Interpreting of punched cards will not be provided by UTCS operations staff.
5. The number to call for system/job status will be 978-7393.

Operations at McLennan Labs

The following operational procedures are

now in effect at the CENTRAL McLennan site:

1. Access to filed output in McLennan Physical Labs is governed by existing building regulations. During the academic sessions (September to mid-December and January to mid-August) hours of access will be:

Monday-Thursday 08:30-22:00

Friday 08:30-17:00

Saturday-Sunday CLOSED

Outside of the academic terms (mid-December to January and mid-August to September) hours will be:

Monday-Friday 08:30-17:00

Saturday-Sunday CLOSED

In addition, the building will be closed on all university holidays.

2. Non-confidential output will be filed in the hallway outside Room 367 in McLennan Labs. Confidential output will be filed in the machine room, Room 367.

continued...

Special Forms continued

Operations at the Engineering Annex Terminal

As a result of the special forms consolidation, service in the Engineering Annex Terminal (General Purpose Job Stream area) will consist of two self-serve printers, a reader, a GOULD 5200 electrostatic plotter, five keypunches, and an interpreter.

The printers will retain their present classification of output destination SELFSEV, with the standard forms mount and print limit of 15,000 lines. Output of confidential electrostatic plots (GOULD) will be filed in the machine room in McLennan Labs. Non-confidential GOULD output will continue to be filed in the Engineering Annex. An interpreter will be available in the Engineering Annex for self-serve use.

Bob Chambers

PACX Upgrade

PACX, an acronym for Private Automatic Computer eXchange, is a telecommunications system that allows a user's terminal to be connected to any one of several computers. This means that via a single connection to PACX, a terminal can access any of the seven UTCS services available through PACX: APL, ATMS, TSO, WYLBUR, DECsystem-10, PWB UNIX, and the SCS VAX (the latter service depending on availability). PACX can connect terminals or modems to its 256 computer ports, thereby supporting 256 simultaneous active sessions, each with a data rate as high as 4800 baud.

Over the summer, PACX hardware and firmware have been upgraded to Revision D. This upgrade corrects a number of known problems including the very annoying "random disconnect" phenomenon. There has also been a move to consolidate classes as much as possible so that only a single class needs to be specified independent of the speed available (to a maximum of 4800 baud).

The user dialogue with PACX has also been improved. In addition to the existing numeric class designations, alphanumeric

classes will be supported shortly. Users can still use the numeric classes but may select the alphanumeric designations if they prefer. A PACX Sign-On Procedure sheet, suitable for posting at terminal sites, will be available from the Information Office, Engineering Annex, Room 206.

Local users presently accessing PACX through our dial-in facility have an inexpensive alternative open to them. If you are close to the St. George campus, a leased line could cost less per month than your terminal phone and provide a direct connection between your terminal and PACX. A different modem may also be required. A leased line connected to PACX will support transmission speeds up to 4800 baud rather than the 300 baud available on regular telephone lines. Contact Ron Vander Kraats at 978-4624 for further details.

Every Wednesday morning between 06:00 and 08:00 is reserved for preventative maintenance. During this time, PACX will be unavailable.

Ron Vander Kraats

DATAPAC

At the present time, UTCS maintains limited DATAPAC access. The principal reason for the limited capacity has been the unpredictable and high cost imposed by the use of DATAPAC on UTCS. DATAPAC is a digital package network intended for long distance access to UTCS facilities. The nature of the connection implies that all charges associated with these telephone calls are borne by UTCS. Until now there has been no mechanism to identify the caller and therefore to bill a user with his portion of such charges. For these reasons UTCS has restricted the ease of access.

Very soon Bell in Canada and in the United States will be providing a facility whereby users will be able to open their own accounts for charging the use of DATAPAC lines (and TELENET a U.S. equivalent). UTCS will be obtaining full details of how these services will function, but would like to give advance warning that effective Janu-

ary 1st, 1983, we shall no longer accept "collect" calls on DATAPAC services. At that time, any users of DATAPAC will have to have obtained the necessary codes and passwords for the billing to go directly to them. In keeping with this change in charging policy, UTCS will examine closely the capacity of our current DATAPAC resources and may expand the facility.

As a service to our users, we shall obtain and have available a supply of application forms and details as to how the necessary applications may be made. According to our current information, approximately 1 month should be allowed to obtain codes, and there will be a minimum monthly charge levied by the Bell system. The Information Office at 978-4990 will be kept informed of developments as they occur.

Dr. Frank Spitzer

SPEAKEASY Phaseout

As was mentioned in last month's *COMPUTERNEWS*, severe budgeting constraints have forced UTCS to remove costly and under-used software from our system. Consequently, SPEAKEASY and its associated libraries will be removed from our system on September 1. If you know of any-

body using the package or its libraries, please contact a UTCS Advisor at 978-HELP.

Herb Kugel

Accounting Services

Accounting Services, located in McLennan Physical Labs., Room 337, handles requests for new accounts and Service Access Codes (SAC's) as well as changes to existing accounts.

UTCS accounts and codes are structured on three levels: Blanket Purchase Order Ac-

count Number, Customer Account Number, and Service Access Code.

The following is a description of the basic account divisions and how they are funded and controlled.

continued...

Accounting Services continued**Blanket Purchase Order Account (BPOA)**

Accounts are normally funded by a customer raising a Blanket Purchase Order through his/her Department. This Blanket Purchase Order encumbers or reserves funds required to meet the estimated cost of that customer's computing at UTCS, usually for a fiscal year. The dollar amount shown on the Blanket Purchase Order is recorded by UTCS in a holding account, called a Blanket Purchase Order Account (BPOA). This amount becomes the customer's credit limit or allotment and can be changed at any time by requesting an increase or decrease on a Purchase Order through the University's Purchasing Department.

Customer Account Number (CAN)

The allotment in a BPOA can be divided out or budgeted for different individuals, projects, courses, etc., at the next control level, which is the Customer Account Number (CAN). If all funds allotted to a BPOA are used for a single purpose, then only one CAN is established and the spending limit on that CAN is identical to the total amount allotted to the BPOA. However, multiple CAN's can be set up under a single BPOA, with each CAN having an individual spending limit. In the second instance, the sum of the individual CAN's should not exceed the total BPOA allotment.

Service Access Code (SAC)

To access the various software products and services on any of the UTCS computing systems, a Service Access Code (SAC) must be established for each machine system that the customer intends to use. SAC's are set up for users who are authorized owners or holders of a valid Customer Account Number. Any number of SAC's can be set up under a single CAN and the CAN holder may distribute these SAC's to other individuals. In this case, it is up to the CAN holder to control the spending limit for his/her account. This may be

done by requesting that a dollar limit be set on a SAC and/or by restricting the types of services that a SAC may use.

Conditions of Usage

The following conditions of usage apply to all UTCS SAC's:

1. A SAC is issued to the Customer Account holder and, as such, is non-transferable without the authorization of UTCS Accounting Services.
2. Other persons using such SAC's under the supervision of the Customer Account holder must be registered with UTCS Accounting Services.
3. All authorized code users are expected to take the prescribed steps to protect their codes from unauthorized use (see following article). The code should be used solely for accessing private files created by the code, other special files made available to that code, or files in public libraries.
4. For their own protection, users are requested to report any improper use of the computing facilities to UTCS Accounting Services.

Billing: Monthly Statements

At the end of each month, charges accrued for the month are billed against the Blanket Purchase Order which funds computing services at the various account and access levels. The unused portion of the encumbered amount of the Blanket Purchase Order becomes the BPOA allotment for the following month's usage. At the end of the month, detailed statements are mailed to the individuals who are responsible for budget control at the various levels within each Department.

The types of reports are:

Departmental Summary Report - sent to Departmental Representatives showing a

continued...

Accounting Services continued

record of activity on each BPOA and CAN used by the Department.

BPOA Report - mailed to persons in whose name the Purchase Orders have been raised (BPOA holder). This report shows a summary of all activity on CAN's drawing allotments from that BPOA.

CAN Report - addressed to persons in the

Department responsible for control of expense at the CAN or project level. This report contains a detailed summary of job charges, storage charges, and miscellaneous items billed directly to the CAN.

If you have any questions about UTCS accounting, please contact Marg Doherty at 978-3960.

Marg Doherty

Protect Your Codes

Users should take the following precautions to ensure optimal security for their Service Access Codes (SACs).

- Think of your SAC and password as a credit card or blank cheque - **Don't Lose It.**
- **Remove Job Cards** from card decks left in storage cabinets, public batch terminals, or trash cans.
- **Do Not Imbed Job Cards** in datasets.
- **Obscure the Password** at your terminal session.
- **Avoid the Sharing of SAC's** by estab-

lishing a separate SAC for each user.

- Instruct the accounting office to **Lock Your SAC** if you do not plan to use it for a period of time.
- **Watch the Balance or Accumulated Usage** to determine if unauthorized activity is taking place on your SAC.
- **Request a Spending Limit** on the SAC.
- **Report Suspected Misuse Immediately** to the Accounting Office.

Marg Doherty

Policy for Chargeable Services

It has been UTCS' policy, as dictated by budget restrictions, that incremental expenses incurred on behalf of a user could not be charged to that user's appropriation account designed for computing (1-xxx-xxx-90,95 or 98). This includes billing to a Customer Account Number (CAN) or by debit memo to the free balance of these appropriation accounts. Following is a list of services which must be paid for from "hard-fund" sources:

Staff Services:

- Data Entry
- Job Handling Operations

Hardware:

- Small Parts
- Electrical Parts
- Computer Systems Rental/Lease

continued...

Chargeable Services continued**Short Courses:**

- Registration Fees

Documentation and Supplies:

- UTCS Documentation (including USER-BOOK)
- Manuals and Books
- Magnetic Tapes
- Terminal Supplies such as ribbons and printwheels
- Standard Computer Paper (by box)

Communications Services:

- Data Channels
- Modems/PACX Rental & Sales
- Terminal Rentals
- Port Lease

Hardware and Equipment Repair:

- Service Calls

- Annual Maintenance Contracts

Small Computing Systems:

- System Sales
- Equipment Sales

Special Forms Output

- Non Standard Forms (Thesis Paper, Labels, etc.)
- Phototypesetting (CAT, Varian)
- Xerox 9700

Special Machine Cycle Service

- By prior arrangement with UTCS

If you have any questions concerning billing procedures, please contact Accounting Services at 978-3960.

Marg Doherty

University of Toronto Computer Library

The UTCS Information Office Library and the Department of Computer Science Library (formerly at 121 St. Joseph Street) have been amalgamated to form the University of Toronto Computer Library. The Computer Library houses a collection of over 3000 books, 2500 technical and government reports, and 150 journals as well as an extensive collection of DEC, IBM, and other computer related manuals. Most of the books and reports can be borrowed for a one week loan period; the periodicals and manuals are for reference use only in the library.

The Computer Library is located in Room 206 of the Engineering Annex, 11 King's College Road. Hours of operation will be 9:00 am - 5:00 pm, Monday to Friday.

For further information, please call:

DCS Librarian: 978-2987

UTCS Information Services: 978-4990

*Harriet Cooper
Stephanie Johnston*

User Services

As noted throughout this issue of *COMPUTERNEWS*, a number of familiar user services have been changed or discontinued as a result of increasing budgetary restraints. However, UTCS will still endeavour to provide help, advice, and assistance to its users through a variety of avenues. A brief description of some of the routes available to users follows.

Information Office

The Information Office located in the Engineering Annex, Room 206, (978-4990) continues to be located in the library and will continue to provide similar services as have been available in the past. It will be the source of information with respect to manuals and for the purchase of manuals and various supplies pertaining to UTCS facilities. (See the articles "Manual Sales" and "Cards and Supplies Sales" for more details.) It will normally be open between the hours of 9 am and 5 pm, Monday through Friday. In the event that the person staffing the telephone cannot obtain the information, the user may be redirected to more specialized facilities.

Advising

The Advising function will continue via the telephone with hours designed to suit the time of year. The principal number with multiple lines associated with it will be 978-HELP. The emphasis will be on providing simple and fast solutions to an existing user's problem.

Consulting

This new service will fulfil the consulting component which was previously handled by the CSR's. Internal university users are directed to contact Dr. Bill Fehlner at 978-6509 while users outside the university community should contact Mr. Ihor Prociuk

at 978-6875. Both consultants will have a staff working for them capable of analyzing and consulting with users regarding proposed computing applications. The consultants will be able to draw on the detailed knowledge available from the Applications Support Group in all areas of UTCS supported computing.

Education Facility

The Education Facility has been moved from the Engineering Annex to McLennan Labs, Room 221. A full range of courses as described in the article "Fall Short Courses" in this issue will be available. In addition, UTCS will be willing to respond to requests for special courses and for demonstrations where these are consistent with UTCS policy. Any users wishing to use the Educational Facility, either for teaching purposes, as a terminal location, or to register for UTCS short courses contact Ms. Irene Rosiecki in McLennan Labs, Room 217, 978-4565 in order to make the necessary arrangements.

The Research Access Terminal Room, previously in the Engineering Annex, is now in the outer section of Room 221 in McLennan Labs. The terminals here may be used for research purposes throughout the day. The terminals in the Educational Facility may, of course, be used for the same purposes when courses are not being taught.

Associated with the Educational Facility is also a location equipped to play video cassettes in a self study area. Courses may be available here from time to time. Users are invited to exploit these facilities to the full.

Dr. Frank Spitzer

UTCS Publications

UTCS produces a variety of documentation to acquaint the user with all resources available at UTCS and to enable him/her to use the computing facilities. The following is an outline of the various publications available at UTCS.

USERBOOK

USERBOOK is the official reference manual for UTCS. Its modular design allows each subscriber to compile a customized reference manual depending on the user's particular needs.

Reference Cards

A series of pocket-sized reference cards which summarize the JCL and/or command lists for accessing UTCS systems is also available. In addition to describing the most commonly used commands and options, these reference cards point to the appropriate chapter/module of USERBOOK for more detailed information. The systems covered by these reference cards include: HSJS, GPJS, WYLBUR, LIBRA-EDT, and DECsystem-10.

HOW TO Series

The HOW TO series of manuals describes the operation of the self-service equipment

at UTCS. Each manual describes the basic techniques required to operate the equipment at a given terminal; step-by-step explanations are accompanied by examples and photographs. These manuals can be stand-alone documents or optional USERBOOK modules. Some of the available titles cover how to use IBM 029 keypunches, IBM 1403 line printers, and CDC line printers.

COMPUTERNEWS

COMPUTERNEWS, the UTCS newsletter published 8 times yearly, describes current activities and changes. It is available free of charge to UTCS users by filling out a subscription form.

Other Publications and Supplies

In addition to UTCS documentation, users can also purchase IBM and DEC manuals as well as other computer-related material. These materials include: text processing documentation, statistical publications, terminal ribbons, and printwheels. Items not regularly stocked can be ordered.

Harriet Cooper

Publications and Manual Sales

As we informed our readers in the May/June issue of *COMPUTERNEWS*, the Information Office will no longer be the only focal point for the distribution of all computing documentation. Over the summer, the University of Toronto Bookstores have been assuming responsibility for documentation sales and distribution of some of our manuals and USERBOOK sections.

Instructors are being asked to place orders

for USERBOOK sections and other documents required for instructional purposes through the Bookstores at the downtown, Scarborough and Erindale locations.

As of September, the following publications will be available through the bookstores: 3.6HSPLC, 3.6HSSPK, 3.6HSWATFIV, the LIBRA manual, and the HSJS Reference Card. [Additional items may be added throughout the year.] Students are request-

continued...

Publications and Manual Sales continued

ed to purchase the above listed course material at their respective bookstores.

The Information Office will continue to maintain a small supply of frequently requested documentation for sale at the same price that the Bookstores charge.

IBM and DEC manuals as well as other computer-related materials and less frequently requested documentation can still be purchased at the Information Office, Engineering Annex, Room 206 (phone 978-4990).

Harriet Cooper

Card and Supply Sales

Effective September 1, 1982, users of UTCS services will no longer be able to obtain cards from bin in the Key punch areas. Users must now obtain their own supply of cards by purchasing them from the Univer-

sity Bookstores at the Erindale, Scarborough, and St. George Campuses.

Coding forms are available at the University Bookroom.

Text Services at UTCS

Despite the increasing popularity of standalone word processing systems within and outside of the University of Toronto, the text processing services on UTCS's various computing systems continue to be a popular alternative -- particularly for students and faculty at the University. Like word processing systems, UTCS's text processing systems can remove much of the drudgery traditionally associated with the preparation of large documents and can give users more control over their text.

UTCS has been offering UNIX-based text services on its 11/70 computer for a little over a year, and an introductory course on UNIX text processing beginners has been in operation for many months. Beginning soon, UTCS will be offering introductory courses covering more advanced UNIX text processing topics. These include:

1. **Introduction to UNIX TBL:** TBL is a UNIX program which helps users with the preparation and presentation of tabular material. Beginning this month, a course to introduce TBL to those already familiar with text processing on UNIX will be offered. For more information, see the article entitled

"New Course Offered on UNIX TBL" in this month's *COMPUTERNEWS*.

2. **Introduction to EQN:** EQN is a UNIX program which helps users who have to display mathematical formulae in their documents. UTCS intends to produce an introductory EQN course sometime in the next year.

A "text-related" facility provided by UTCS which might also be of interest to people who do not use UTCS's text products is our 9700 printing service. Using this service, users are able to get printed output on standard 8 1/2 by 11 inch paper. Text-related output from ATMS, the DECsystem-10, and UTCS's MVS systems can be easily printed on the 9700, and the quality of output is far superior to that available on any conventional line printer. Indeed, many people are using the 9700 to print final copies of documents such as theses and other large, important reports.

However, generating text-related output is only one of the 9700's possible uses. Using a special font, output from application programs such as SAS may also be printed on the 9700. This produces output on convenient 8 1/2 by 11 inch paper, and the

continued...

Text Services at UTCS continued

9700 is even capable of printing it on both sides of the page. Thus, the amount of paper that is produced is dramatically decreased.

Enhancements for other text-processing users may also become available during this year, as shown by the recent SCRIBE test. SCRIBE is a formatter designed specifically for the formatting of "academic text". As was discussed in the July/August issue of *COMPUTERNEWS*, UTCS experimented with SCRIBE during the months of April, May, and June of this year, and found that it offered considerable text formatting enhancements for our DECsystem-10 users. For this reason, UTCS has recommended to the Review Board that the package be acquired for our DECsystem-10.

Also, beginning this year, UTCS intends to evaluate its text analysis tools for the Humanities. As part of this evaluation we have been investigating the Oxford Concordance Program from Oxford University Computing Services. This flexible package will be able to produce many types of concordances and will complement UTCS's COGS Concordance Generation system.

For more information about OCP, please see "OCP - A New Program for Text Analysis at UTCS" in this issue of *COMPUTERNEWS*. If you would like to take advantage of any of these packages, please contact a Consulting Representative for more information.

John Bradley

OCP - A New Program for Text Analysis at UTCS

Recently, UTCS received a "working" version of the Oxford Concordance Program (OCP) and is presently investigating it to augment the products available for text analysis at the University.

A concordance program performs word counts and compiles word indexes. OCP can execute these functions from texts in a variety of languages and alphabets. It can also be used for many text analysis applications, including the investigation of style, vocabulary distribution, grammatical forms, rhyme schemes, text editing, and language acquisition and teaching.

OCP has been designed so as to be easy-to-use for those who have had no previous computing experience. The user must simply present two sets of information to OCP: the text which is to be analysed and the set of commands describing the analysis to be carried out. OCP accepts texts in a variety of formats, with no restrictions on the use of characters in the text. The commands themselves are simple, easy to use English words, each having a reasonable, built-in default.

Facilities in OCP

- **Format of Text** - Input records may be up to 140 characters in length with optional newline, continuation hyphenation, and comment characters. References can be in COCOA or fixed format, or as specific strings at the beginning of lines.
- **Selection of Text** - Text may be selected by text line, computer record, word number, reference category, between certain characters, or at the end of lines.
- **Division of Text into Words** - Alphabets, diacritics, padding letters, and punctuation. Characters can be ignored or compressed and up to eight characters may represent one letter.
- **Selection of Words, Phrases, and Collocations** - Words, phrases, and collocations can be selected alphabetically, by frequency range, length in letters or characters, list of words to be included or excluded, patterns using dummy characters, or samples.
- **Ordering of Keywords** - Keywords may be ordered by forward or reverse alpha-

continued...

OCP at UTCS continued

- betical order, frequency, or word length.
- **Types of output** - Word list, word indexes, and vocabulary statistics can be generated as output.
 - **Context cut off** - By *n* words or letters and within that range up to the end of one text reference unit or up to one or more characters.
 - **Output Format** - Output can be formatted in columns, pages, and titles. Keyword position and reference position can be chosen. Characters may be altered or omitted at the output stage.

The OCP program can be accessed on the IBM 3033 by invoking the following catalogue procedure:

```
//job card
// EXEC OCP
//COMMANDS DD *
      : <a list of OCP commands >
//TEXT DD *
      : <text to perform analysis >
/*
```

Initial tests have shown that although OCP is very expensive to use in comparison with COGS (an existing concordance program), it offers quite a few features unavailable from COGS.

More information about OCP can be found in the Oxford Concordance Program Users' Manual, which can be ordered through the Information Office.

Lidio Presutti

New Course Offered on UNIX TBL

This month the Text Support Services Group at UTCS is introducing a new short course for users who are interested in the preparation of tables. The course will deal with TBL, a program which formats data into tabular form, and is available on the PDP 11/70 UNIX system.

TBL interprets specified options and commands and prepares the table based on the data and formatting commands which have been entered using the UNIX editor. By changing the options and commands, a

wide choice of table layout designs is available to the user. Output is available from either the Varian, a phototypesetter simulator used for rough drafts, or on the CAT/8 which is used for final copy.

For further information on this course, see the "Fall Short Courses" article in this issue of *COMPUTERNEWS*.

Dawne Smith

DECsystem-10 News

DEC-10 Hardware Improvements

Improvements for the DECsystem-10 since last Spring include the acquisition of an additional disk drive and new memory.

The disk space shortage experienced by users during the past year has been alleviated by the addition of a fifth RP06 disk drive, with a capacity of about 309,000

blocks, which has permitted an increase in the amount of on-line storage available to users. The new storage will be implemented by the creation of a new file structure known as DSKD.

For the time being each new account will be given a file directory on DSKD. At a later date we expect to balance the storage allocated to DSKB and DSKD.

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DECsystem-10 News continued

The installation of the new MH10 memory increment resulted in a dramatic improvement in system performance. The 256 kilo-word addition doubled the total system memory to 512 K words (1024 pages). The amount of memory available to user jobs almost tripled from 279 pages to 791 pages, with the remainder being used by the operating system itself.

The effect on users was immediate as the system responded almost instantly to users' commands. This resulted from the much decreased frequency of swapping which was required of the operating system. The July/August issue of *COMPUTERNEWS* contains an article describing the effects of the change in more detail.

Although the additional users expected to come on the system this fall will produce a heavier load than existed at the time the memory was installed, the indications are that the hardware improvements will be able to handle the load. Thus, computing on the DEC-10 this year should be a more pleasant experience than at any time in the recent past.

DEC-10 Security

TOPS-10, the DECsystem-10's operating system, is considered to be extremely secure. The system implements several techniques to prevent unauthorized access of the system or its files.

The weakest link in the security built into any computer system is the fact that much of it depends on the use of passwords. In most cases of illegal use, the unauthorized user has been able to guess the password of the account holder because the owner of the PPN used his login name as the password. Account owners should remember that they bear full responsibility for security violations caused by failing to maintain a secure password. UTCS strongly recommends users select passwords that have meaning only for them. Words that can be easily guessed or have a close association to

a particular user, such as a first name or last name, are a security risk.

In addition to password protection, the file system has both a general purpose access protection scheme and a method which allows users to grant or deny specific levels of file access to individual users. There are times, however, when even more security may be called for. Special measures may be appropriate, for example, when data is being transported to another computer site or if it is so sensitive that it must be protected even from the computer operations staff itself. An example of such a file encryption program is CRYPT. Interested users should read the CRYPT help file.

New FORTRAN-10 Released

Version 6 of FORTRAN-10 is now in production. This release incorporates bug fixes, rewritten mathematics library, and object time system routines as well as a partial implementation of the 1977 Fortran standard (mainly in the area of I/O control, additional formatting capability, OPEN parameters, etc.). The new version, which was installed on April 29, has been used extensively with no significant problems.

Old EXE files will continue to be executed without change. However, users should be aware that there are a number of changes which may affect programs at compilation time, while linking, or during execution. Many of these involve warning messages relating to the new FORTRAN standard and are easily resolved. Others (such as mathematical routines which produce more accurate, but different, results) may be more subtle. Old and new REL files cannot be linked together, but old REL files will link properly using the version 6 library and object time system. Fortran users are strongly advised to read the file DOC:FORTRA.NEW which describes these changes in some detail.

There is also a new FORTRAN reference manual available. The DEC manual number is AA-J127A-TK and may be ordered through the UTCS Information Office.

continued...

DECsystem-10 News continued**DEC-10 Short Courses**

UTCS will be offering several short courses this fall which may be of special interest to DEC-10 users.

The courses and their online descriptions are:

Course	Description
Novice Users	DOC:NOVICE.CRS
Advanced Users	DOC:ADVANC.CRS
Assembler Language	DOC:ASSEM.CRS

More information about these and other courses is offered in the article "Fall Short Courses" in this issue of *COMPUTER-NEWS*. If warranted by demand, additional sessions will be scheduled. For further information and course registration call the Education Facility at 978-4565.

System Documentation Available

A DEC-10 Reference Card is available from

the UTCS Information Office. This card summarizes the most common techniques, commands, and programs used on the DEC-10. Although particularly helpful for the novice user, it will also be of use to anyone using the system.

There are also a number of older TOPS-10 manuals available from UTCS at reduced prices. Several new manuals are also available. Please see the on-line file DOC:MANUAL.DOC for additional details.

Advising Service for the DEC-10

DEC-10 users requiring the assistance of the timesharing advisor can communicate with the advisor via the MAIL or the SEND command. Mail may be sent to ADVISOR or [111,703]. When using the SEND command, consult "SYS [111,703]" to determine if the advisor is logged on and, if so, which TTY number to use. Assistance is also available by phoning 978-HELP.

Dr. Edmund West

DEC-10 Users' Forum Scheduled

Another in the series of DEC-10 Users' Forums has been scheduled on Wednesday, September 29, 1982. The forum will be held at 3:00 p.m. in the FitzGerald Building, 150 College Street, Room 129. The FitzGerald Building is located south of the Medical Sciences Building on the east side of Taddlecreek Road. Watch the LOGIN notice for details. Posters will be placed at the various UTCS remote terminals.

In the past these forums have been very

useful for users and UTCS staff alike. The format of the meeting is informal with users communicating directly with the UTCS staff responsible for maintaining the DEC-10. UTCS personnel have an opportunity to learn first hand about the issues which are most important to our users. All users are urged to attend.

Dr. Edmund West

RENEW YOUR SUBSCRIPTION (FINAL CHANCE)

We would like to thank all those people who returned their subscription renewal forms so promptly.

For those who have not been quite as prompt, we are extending the deadline for one more issue. If we do not receive a renewal form by the end of September, your subscription will expire with this issue (#201).

This subscription renewal form applies to anyone who is receiving *COMPUTERNEWS*, both account (CAN) holders and non-account holders.

COMPUTERNEWS SUBSCRIPTION RENEWAL FORM

Name and ADDRESS, in full

----- FOLD HERE -----

Return to:

COMPUTERNEWS
University of Toronto Computing Services,
Information Office,
Room 206,
11 King's College Road
Toronto, Ontario
M5S 1A1

CLASS C and CLASS E Services

UTCS currently offers U of T users two low cost batch services - Class C and Class E. Both services offer computing at lower rates than either Class A or B. Class C and E jobs are executed weekdays between approximately 01:00 and 06:00.

The difference between these two services is mainly in the charging algorithms. Class C jobs incur no charge for CPU time used. Other items like memory usage, I/O usage (tape and disk EXCPs, VIO pages), peripheral devices (tape, disk mounts, etc.), and unit record processing (cards read, lines printed, cards punched, etc.) are charged the same rates as in Class A and B. A service factor of 0.75 is usually used to calculate the charges; a service factor of 0.375 has traditionally been applied to the memory usage charge during the summer months of June to September. The memory limit for Class C is 5 megabytes.

Class E jobs receive no charge for memory usage. The service factor used to calculate the CPU time charge is 0.044. Charges for I/O usage, peripheral devices, and unit record processing are calculated as in Class C. Class E jobs incur a minimum charge of \$15. if the total of the CPU time, I/O usage, and peripheral device charges is not greater than this amount. Class E is designed for users with programs that require large amounts of memory usage, up to a maximum of 5 megabytes.

To determine if your Class C job can be run at less cost in Class E, consider the following two conditions. One, only those Class C jobs which use more than 70K of

memory, averaged on the job, can *potentially* save money by running in Class E. During the June to September period this figure becomes 140K. Two, of the jobs satisfying the first criterion, those in which the total of the Class C charges for memory usage, I/O usage, and peripheral devices exceeds \$15. will cost less when run under Class E.

Class C or E jobs are, for the most part, executed on a first-in, first-out basis unless the job at the top of the queue cannot be started because necessary resources (e.g. tape drives) are not available. In such a case the operator may start the next job in the queue if the resources are available to allow it to execute. Class C or E jobs receive a lower level of service than Class A or B jobs; only if resources are not needed by the latter classes will they be made available to Class C and E jobs. Additionally, Class C and E jobs are often run on weekends and, occasionally, during weekday evenings before midnight.

Users should note that the Class E service option must be requested on the GPJS SAC request form if access to this service is desired. We would ask our users to note that Class E is only available to University-funded account holders.

For more information on the use of Class C or E, see USERBOOK section 3.3 Batch. If you encounter difficulties call 978-HELP.

Bob Chambers

Communications and Small Systems

The Communications and Small Systems group (CSS), has had quite a history of moving. In the last five years, we have had our offices on the second floor of the Sir Sandford Fleming Building, the first floor of Sandford Fleming, the third floor of Sandford Fleming, and the second floor of the Old Metro Library. Sometime around mid-September, 1982, we will be moving back to the newly renovated Sir Sandford Fleming Building, Room 4306. Users interested in viewing our facilities can contact Teri Kusy at 978-3787 to arrange a short tour.

CSS is involved in a wide range of activities. Our Communications group is concerned with networking operations and UTCS already has several large networks of terminals as well as several mainframe computers linked together by various types of communication. We are currently investigating ways to improve the service UTCS provides users in this important area. Ron Vander Kraats (978-4624) is our Communications Supervisor.

Our Field Services group is responsible for maintaining communications links, UTCS-provided computer terminals, and associated equipment at the downtown campus. This group also maintains many of the small computer systems installed in laboratories.

Our Hardware group builds custom equipment required by other groups within UTCS and also configures and assembles small computer systems purchased or leased by staff in other departments of the University. Luke Sulatycki (978-4693) is the Hardware supervisor.

Our Software group provides consulting services, contract programming for minis and

micros, and systems support of RT-11, RSX, and UNIX systems (both in the CSS lab and in users' sites). Contact Ian Darwin, Software Supervisor, for information at 978-6134.

In addition to our work with mini-computers, CSS is involved with microcomputers such as Z-80 S-100 systems, the Apple II, and the Radio Shack TRS-80. CSS is in the process of obtaining the entire CP/M User Group library of public domain software for CP/M systems including compilers, utilities, debugging tools, games, business software, and other programs which can be obtained at no charge. We offer assistance to users interested in acquiring microcomputers for university applications. Please contact Grant Davis at 978-4071 for information.

CSS also operates a unique self-service computing laboratory with graphics, signal processing software, data acquisition, and A/D - D/A conversion, etc. The hardware includes:

- a medium-scale PDP-11 system
- an 11/40 with GT44 graphics
- nine-track magnetic tape
- analog/digital converters
- several disk and diskette formats
- a line printer
- several other peripherals.

There is also a smaller 11/05 system with GT40 graphics. These machines are available on an hourly rate basis to CSS account holders. For more information on the CSS lab systems, please contact Teri Kusy at 978-3787.

Ian Darwin

Computing Disciplines Facility

Last year UTCS introduced a VAX 11/750 running Berkeley UNIX to be used for computing courses given by the Departments of Electrical Engineering and Computer Science.

A review of the service over the year showed some minor growing pains in the beginning. Lack of 24 hour availability in the fall caused some overcrowding in terms of student to terminal-time ratio, and students' sophisticated use of the system caused some overload of the machine's resources in the spring.

Despite these inconveniences, the overall feeling toward the system was favourable as indicated by the number of courses requesting to use the system. To keep up with additional requests, a VAX 780 was added which more than doubled the computing capacity.

User terminals and printers are located at the Engineering Annex, Scarborough, and Erindale sites. At the Engineering Annex the original VAX 750, running with 2 megabytes, supports 32 IBM 3101 user terminals and 2 Teletype line printers while the VAX 780, running with 4 megabytes, supports 34 IBM 3101 terminals and a Dateline 3/21 line printer. The Scarborough and Erindale sites each have 7 user terminals and a Data Royal line printer connected to the VAX 780.

In total, there are 80 terminals available to the users, 66 of which are located in Rooms 201 and 203 of the Engineering Annex and are available 24 hours a day.

Andrew Mountain

Change Committee

Full details on current changes will be published in *COMPUTERNEWS* and *HOT-NEWS* as events occur. If there are any changes users feel would be of benefit, they should feel free to contact Dr. Spitzer at 978-4619.

1. IBM VS FORTRAN was installed on the IBM Academic System on July 5. FORTRAN level 66 is the default and users wishing to run level 77 must specify that option.
2. Non-standard 2671 paper tape reader service was discontinued on July 1.
3. Version 6 of FORTRAN 10 is now available in SYS: on the DECsystem-1090.
4. UTCS has installed a new IBM 3033/U16. This machine will initially run a new student service called BICS (Basic Instructional Computing Services) which will be available in September.
5. UTCS plans to remove SPEAKEASY from the Academic system in September.
6. A new version of SAS, 79.6, was installed on the Academic system on July 15. SAS 79.4, now obsolete, will be removed from the Academic system in September.
7. UTCS has installed the current production level of PACX control firmware (REV D). (See article in this issue on PACX.)
8. There is a possibility that the machine resources for the Spare Cycle Service on the VAX will be available in the fall.

Cecilia Welch

Update On SAS

New Users Guide

The 1979 SAS User's Guide is now out of print. It is being replaced by the following two new user's guides:

- *SAS User's Guide: Basics*, 1982 Edition
- *SAS User's Guide: Statistics*, 1982 Edition

The *Basics Guide* documents the DATA and PROC steps, and includes chapters about the applications of each step. As well, procedures for descriptive statistics (CORR, FREQ, etc), reporting, SAS utilities, and system-dependent utilities are documented.

The *Statistics Guide* documents procedures for regression, analysis of variance, categorical data analysis, multivariate data analysis, discriminant analysis, clustering, scoring and MATRIX.

These new manuals will be available in the Information Office as soon as they arrive from the SAS Institute, which should be in September or October.

SAS 79.6 and the Removal of SAS 79.4

SAS 79.6 became the production version of SAS on July 15th, and no serious problems have been reported. Therefore we are planning to remove the 79.4 version, of SAS from the Academic machine on September 1st. If any user is still using this old version because their program does not work under SAS79.6, please contact the Central Advising Office at 978-HELP as soon as possible.

SAS Data Libraries

Beginning with the release 79.6 of SAS, SAS data libraries may be specified in the JCL as DD DUMMY. Any DCB specification is ignored and is not altered.

For input data sets, a _NULL_ data set is

assumed. For output data sets, no data is written. In some cases, this feature can replace the SAS system option OBS=0.

This feature allows you to control the SAS data libraries read or written in a SAS job by changing the JCL. For example, suppose you run a weekly production job which produces a summary and a detailed report. Normally, you would want only the summary printed; the detailed report is printed if you need an audit trail. By specifying the DETAIL SAS data library as DD DUMMY, you can produce only a summary report.

```
// JOB
//SUMMARY DD DSN=USER.MY.SUMMARY.DATA,DISP=OLD
//DETAIL DD DUMMY
//SYSIN DD *
DATA SUMMARY.MAY DETAIL.MAY;
    statements to produce reports
PROC PRINT DATA=SUMMARY.MAY;
PROC PRINT DATA=DETAIL.MAY;
```

Beginning with 79.6, users must allocate SAS disk data libraries with DCB characteristic DSORG=DA,RECFM=U. This is to prevent the possibility of destroying a non-SAS data set by incorrectly referencing the data set as if it were a SAS data library. It is also used to prevent SAS data libraries from being copied or moved incorrectly.

SAS/GRAPH Enhancements

Two new interpolation methods, HILO and STD, have been added to the SYMBOL statement for use in PROC GCHART. As well as exploded pie slices, you can now control pie slice shading in PROC GCHART. Some modifications have been made to the device drivers at UTCS to try and make the defaults easier for novices to use. Documentation on these changes to SAS/GRAPH is available in the data set APPL.STAT.SAS.GRAPH2.DOC.

New features in SAS/ETS

There are two new test procedures available in the 79.6 release of SAS/ETS.

Update On SAS continued

PROC TARIMA is a test version of the current ARIMA procedure which performs subset models and transfer function models. PROC TIMEPLOT, a test version of the new procedure, plots time-series data down the page (instead of across it, as in PROC PLOT). In PROC AUTOREG, the ITER option in the MODEL statement performs iterative estimation of autoregressive and regression parameters. As well, three new time-series functions are available in PROC MATRIX:

ARMACOV	autocovariance for an ARMA model
ARMALIK	log likelihood for an ARMA model
MRATIO	matrix impulse response function

PROC APPEND

The APPEND procedure copies observations from one SAS data set onto the end of another SAS data set.

A large data set is often used to accumulate observations. The number of observations being added at any one time may be small, but SAS must read all observations when concatenating the smaller to the larger using these SAS statements:

```
DATA LARGER;
  SET LARGER SMALLER;
```

This DATA step takes a lot of computer time if the LARGER data set is very large. However, the APPEND procedure copies the observations from the SMALLER data set onto the end of the LARGER data set without reading through observations in LARGER.

The statement used with PROC APPEND is:

```
PROC APPEND options;
```

No other statements are used with the pro-

cedure.

The following options may appear in the PROC APPEND statement:

ORIG = data set

ORIG= gives the name of the original data set onto which the new observations will be added. This option must be specified. It can also be referred to as BASE=, MASTER=, or OUT=. The data set does not have to exist. (See the NEW option below.)

DATA = data set

DATA= gives the name of the data set whose observations will be copied onto ORIG. If DATA= is omitted, SAS copies the most recently created SAS data set.

NEW

The NEW option tells SAS that instead of adding observations onto the end of ORIG, the observations should replace the ORIG data set entirely. The NEW option is assumed if the ORIG data set does not already exist.

The only printed output that APPEND produces is a message on the log indicating the number of new observations added to the ORIG data set. The procedure also prints a message if ORIG is being created as a new data set. PROC APPEND operates on the ORIG data set in "update" mode. Therefore, you can experience problems if interrupts occur during operations. If the system crashes; if you hit the "break" or "attention" key on a terminal; or if line problems occur, the resulting interrupted operation may cause an incomplete data set to be written.

In this example, NEW contains the day's accounting data. PROC APPEND adds NEW to the journal data set OUT.JOURNAL.

```
DATA NEW;
  INPUT ACCTNUM AMOUNT SALESREP;
  CARDS;
  data lines
PROC APPEND ORIG=OUT.JOURNAL DATA=NEW;
```

The example below appends data set TEMP

continued...

Update On SAS continued

to itself.

```
DATA TEMP;
  statements to create data set
PROC APPEND ORIG=TEMP;
```

A copy of data set X is stored in data set Y.

```
PROC DELETE DATA=Y;
PROC APPEND OUT=Y DATA=X;
```

Diane Mitchell

Enhanced Support For Users of SAS Under TSO:

The RUNSAS COMMAND

RUNSAS is a clist or command designed by UTCS for invoking SAS from TSO. There are a number of options available with RUNSAS that are not available with the SAS supplied clists, SAS, SASGO, and SASBMDP. In addition, RUNSAS contains support for the SAS/79.6 TSO support feature, allowing the SAS user to invoke TSO commands from within SAS, as well as options to support SAS/GRAPH.

Help for RUNSAS, describing the options available and their meanings, is available on-line. To obtain this help, type: "HELP RUNSAS", immediately after you sign on to TSO.

Some examples of typical RUNSAS commands are:

RUNSAS

In this case, RUNSAS will ensure that all of the files necessary to execute SAS are allocated and will then invoke SAS 79.6. SAS will subsequently prompt for the SAS program at the terminal. The user then types in his/her program (as described in appendix 3 of the 1979 *SAS USER'S GUIDE*). As well, the user may direct SAS to a file containing a SAS program using the %INCLUDE facility.

```
ALLOCATE DATASET(SAS.PROGRAM) FILE(SASIN)
RUNSAS SYSIN(SASIN)
```

The above example contains two TSO com-

mands. The ALLOCATE command associates the data set SAS.PROGRAM (which presumably contains the text of a SAS program) to the file name SASIN.

The RUNSAS SYSIN (SASIN) command takes the SAS program from the file name SASIN which has been associated with the data set SAS.PROGRAM in the first of the two commands. It does not prompt for the SAS program at the terminal, as in the first example.

RUNSAS GO

In this example, RUNSAS sets the specified options without wasting time checking files. As no SAS options were shown in this example, only the defaults would apply. The keyword GO should only be used if RUNSAS has been used before and all of the necessary files are already allocated.

RUNSAS CALCOMP WORK(100)

In addition to the basic RUNSAS command, the RUNSAS CALCOMP WORK (100) command, using SAS/GRAPH, allocates the files necessary to run the CALCOMP pen plotter, sets the correct options (DEVICE=CAL1051, GRAPHICS), and allocates a new work data set of 100 tracks in size. The old one is freed.

RUNSAS LEVEL(795)

This example invokes SAS 79.5.

continued...

SAS Under TSO continued

RUNSAS WORKINIT OPTIONS('GEN=0 MACROGEN')

If a work data set already exists, SAS re-initializes it. The above SAS options ("GEN=0 MACROGEN") are set.

RUNSAS BMDP

This command, in addition to the normal RUNSAS operation, allocates the files necessary to use BMDP under SAS.

Rob Janes

Summary of APL Hotnews Items

The following is a list of HOTNEWS items entered between June 15, 1982 and August 6, 1982.

DATE	TITLE
29/07/82	Change in test time hours.
29/07/82	Hours of service for the Civic holiday weekend.
05/08/82	Newer functions which are equivalent to the old I-Beam functions.
05/08/82	Differences between <code>[/AI]</code> at UTCS and on the IPSA APL system.
06/08/82	Workspace, 4 DOCWS, has been fixed again.
06/08/82	Courses offered by Keysoft International Limited.

APL HOTNEWS may be accessed by loading the workspace 1 HOTNEWS. For example, to print the news of November 28, 1981, type: NEWS '28/11/81'. To print all news items since October 1, 1981, type: NEWS SINCE '01/10/81'. For more instructions on the use of this workspace, please see the variable DESCRIBE.

Mary Ann Lawry

Research Challenges in Information Technology

The University of Toronto and the University of Waterloo will be holding six 1-day Workshops on October 4 and 5, 1982: These workshops are sponsored by the Cooperative on Information Technology and will be held from 9:30 a.m. to 4:30 p.m. each day. Participants are expected to stay with the workshop of their choice.

The University of Waterloo will feature the following workshops on October 4, 1982.

1. **New Opportunities for Computer-Assisted Learning.** Chairman: Robert MacLean, OISE, Toronto.
2. **Technology and The Culture Industry.** Chairman: Jim Parr, Chairmain, TVOntario

3. **Social & Intellectual Implications of Communications.** Chairman: David Olsen, OISE, Toronto.

A dinner will be held at 6 p.m. with a speaker (to be announced).

On October 5, 1982, the following workshops will be held at the University of Toronto:

1. **Artificial Intelligence: Expert Systems, Natural Languages, Vision.** Chairman: John Tsotsos, Computer Systems Research Group, U of T.
2. **Computers and The Humanities.** Chairman: Phil Smith, Arts Computing Office, U of W.

continued...

Research Challenges continued

3. **Social Implications of Office Technology.** Chairman: David Conrath, Centre for the Evaluation of Communication-Information Technologies, U of W.

Additional workshop speakers will be announced later. The final program may contain minor changes.

For further information contact:

Ms. S.A. Brown
Room 712
Faculty of Library Science
University of Toronto
Toronto, Ontario
M5S 1A1

(416) 978-5460 or
978-3202

Registration is limited to 225 participants and should be completed no later than September 15.

Computing News in Brief

Harry Goode Award Presented to U of T Grad

Professor King-Sun Fu, Goss Distinguished Professor of Engineering at Purdue University and a graduate of the University of Toronto, has received the 1982 Harry Goode Memorial Award.

Fu, the founder and first president of the International Association for Pattern Recognition, was presented the award for his contribution to computer science education and his achievements in pattern recognition. Earlier this year, he was awarded the Education Medal of the Institute of Electrical and Electronics Engineers (IEEE).

Originally from Nanking, China, Professor Fu received a B.S. degree from the National Taiwan University, an M.Sc. degree from the University of Toronto, and a Ph.D. from the University of Illinois.

(Material for this article has been adapted from *Computing Canada*, June 24, 1982, page 8.)

C.S. Enrolment cuts at U of B.C.

The University of British Columbia has decided to cut its 1982-83 computer science course registration by 25%, despite the increasing demand for computer specialists. Lack of funding is cited as the primary reason behind the cut-backs.

Paul Gilmore, chairman of the Computer Science Department, claims that it is becoming increasingly difficult to attract qualified faculty because the university can not compete with the higher salaries offered by private industry. Gilmore estimates that there are at least 50 teaching vacancies in computer science departments across Canada.

(Material for this article has been adapted from *Computing Canada*, May 24, 1982, page 24.)

Telidon on TV Ontario

The Ontario Ministry of Education, in conjunction with the Ontario Government's BILD program, has announced that TV Ontario will be implementing a new Telidon guidance and career counselling service.

Initially, the project plans include the installation of Telidon video display terminals in 70 schools, the majority located in the province's northern communities. As well, 20 youth employment centers and 10 other publicly accessible areas will be given Telidon terminals.

The information for the project will be drawn from the Federal Government's Job Bank, the Ontario Ministry of Education's computer-based Student Guidance Information Service, and other employment infor-

continued...

Computing News in Brief continued

mation systems.

(Material for this article has been adapted from *Computing Canada*, June 10, 1982, page 30.)

Senate Challenges Telidon

The U.S. Congress, rather piqued over the Canadian government's move to prohibit Canadian companies from deducting advertising expenses paid to U.S. broadcasters, is considering legislation to counteract the move.

A proposal has been brought forward in the U.S. Senate, by Senator Daniel Moynihan, to amend bill S 205-1 whereby any U.S. firms' tax write-offs "for equipment or services related to a teletext or videotex system which incorporates technology derived in a foreign country which denies a deduction for the cost of advertising directed primarily to a market in a foreign country when placed with a U.S. broadcaster" would be removed. Similar legislation is being introduced in the House of Representatives and the Reagan administration is expected to be in favour of the proposal as well.

Canadian firms, and in particular the Telidon project, would be the only industries to which the amendment would apply. This would leave the competing French and British videotex systems untouched, offering them the chance to claim a larger part of the U.S. market share.

The Canadian government, though expressing concern, has no plans to amend the Canadian border broadcasting legislation which is perceived as an important part of Canadian cultural policy.

(Material for this article has been adapted from *Computing Canada*, July 22, 1982, pages 1-4.)

What's In a Game?

In microcomputer news, Mattel Electronics Inc. has recently developed a new game called 'DALLAS'. The game comes complete with a cast of the television series' most notorious characters, and when playing the part of J.R., the processor has been programmed to lie, cheat, and blackmail!

(Material for this article has been adapted from *Byte*, May '82, page 396.)

Kimberly Kippen

Letter to the Editor

DEAR EDITOR:

"I am very sorry to hear of your hiring freeze and possible implications on the Newsletter. You provide a valuable service not only to your own user community but to other Computer Centers as well. Your coverage is objective and thorough and well presented. I, for one, use many ideas from

your publication in production of my own. Thank you."

Fern Ellen Greenberg,
Editor, *Interact Newsletter*,
Tufts University
Medford, MA., USA

Erratum

On page 11 of last month's issue of *COMPUTERNEWS*, the article entitled "Warning Against Copying GPJS Catalogued Procedures" cited the example SYS3.PROCLIB. This example should

have read SYS2.PROCLIB.

Kathryn Bourne

Personnel Changes

Steve Chesney, an operator in McLennan, has left UTCS work at the Continental Bank.

Kathryn Bourne

Recent Acquisitions in the Computer Library

ACM Symposium on Theory of Computing,
13th.
Conference record, 1981.

Association for Computing Machinery
Proceedings of the national conference,
1981.

Boehm, Barry W.
Software engineering economics.
Prentice-Hall, 1981.

Clark, George C.; Cain, J.B.
Error-correction coding for digital
communication.
Plenum Press, 1981.

Cody, William J., Jr.; Waite, W.
Software manual for the elementary
functions.
Prentice-Hall, 1980.

Compcon, 23rd, Washington, D.C., 1981.
Productivity, an urgent priority.
IEEE, 1981.

Cooper, Doug; Clancy, M.
Oh! Pascal!
Norton, 1982.

Gear, Charles W.
Computer organization and programming.
3d ed.
McGraw Hill, 1980.

Ghezzi, Carlo; Jazayeri, M.
Programming language concepts.
Wiley, 1982.

Khambata, Adi J.
Microprocessors/microcomputers: architecture,
software and systems.
Wiley, 1982.

Kolers, Paul A., ed.
Processing of visible language. 2v.
Plenum Press, 1979-80.

Leverthal, Lance A.
6809 assembly language programming.
Osborne/McGraw-Hill, 1981.

Mano, M. Morris.
Computer system architecture. 2d ed.
Prentice-Hall, 1982.

Marr, David.
Vision.
W.H. Freeman, 1982.

continued...

New Titles continued

McCormick, Ernest J.; Sanders, M.S.
Human factors in engineering and
design. 5th ed.
McGraw-Hill, 1982.

National Computer Conference.
Proceedings, 1982.

Papadimitriou, Christos H.; Steiglitz, K.
Combinatorial optimization: algorithms
and complexity.
Prentice-Hall, 1982.

Riddle, William E.; Fairley, R.E., eds.
Software development tools.
Springer-Verlag, 1980.

Teorey, Toby J.; Fry, J.P.
Design of database structures.
Prentice-Hall, 1982.

UTCS Systems

3033/N12 Processor

- located in McLennan Physical Laboratories
- provides General Purpose Job Stream, High Speed Job Stream, TSO, WYLBUR, APL and ATMS services
- 12 megabytes of memory
- MVS with JES2

VAX 11/750

- located in Engineering Annex
- provides Computer Science interactive access
- 2 megabytes of memory
- UNIX (Berkeley)

3033/U16 Processor (BICS)

- located in McLennan Physical Laboratories
- provides "Glass Keypunch" access to HSJS
- 16 megabytes of memory
- VM, UTS

VAX 11/780

- located in Engineering Annex
- provides Computer Science interactive access
- 4 megabytes of memory
- UNIX (Berkeley)

4341 Processor

- located in McLennan Physical Laboratories
- provides administrative IMS/VS, DB/DC, Batch and TSO
- 8 megabytes of memory
- MVS with JES2

VAX 11/780 (LIBRA)

- located in McLennan Labs
- provides backup, program testing, and inter-communication relating to student services
- provides Spare Cycle Service
- 4 megabytes of memory
- VMS, LIBRA

DECsystem-10 Model 1090

- located in McLennan Physical Laboratories
- provides General Purpose Time-Sharing
- 512 K - 36 bit words of memory
- TOPS-10 operating system, version 7.01

VAX 11/750 (LIBRA)

- located at Scarborough College
- provides "Glass Keypunch" access to HSJS
- 2 megabytes of memory
- VMS running LIBRA

Communications & Small Systems (CSS)

- located in Sanford Fleming Building, Fourth Floor
- DEC PDP-11/40 with GT44 Graphics
- DEC PDP-11/05 with GT40 Graphics
- Various Z80-based microcomputers (S-100, CP/M)
- IBM Personal Computer
- Western Digital Pascal MicroEngine
- Apple II Plus
- Radio Shack TRS-80
- provides specialized interactive graphics
- provides online and real-time computing services, data acquisition and conversion, and minicomputer services
- provides communications consulting and installation
- maintains computer systems
- provides consulting and configuration of microcomputer systems

VAX 11/780

- located at Erindale College
- provides "Glass Keypunch" access to HSJS and Research access
- 4 megabytes of memory
- VMS running LIBRA

Consulting and Enquiries

Internal Users Consulting	Dr. Bill Fehlner	SS2133	6509
External Users Consulting	Ihor Prociuk	SG200	6875,6885
Erindale College	Peter Wall	2043	828-5311
Scarborough College	Bob Blackburn	S628-A	284-3173

General Enquiries	4990	System Status Enquiries (DEC)	4318
Programming Advising	HELP	System Status Enquiries (IBM)	7393
Access Codes	8703	300 Baud Interactive Services	6200
Account Enquiries (U of T)	8702	1200 Baud Interactive Services	3959
Account Enquiries (External)	7148	DATAPAC	4320 0056
Tape Library (Academic Services)	7319	Telenet	20477
Tape Library (Administrative Services)	6693	Tymnet	<backspace> 30200;;4320 0056

UTCS Directory

Director	Dr. Doron Cohen	MP350	8948
Associate Director	Al Heyworth	MP350	4936
Associate Director	Eugene Siciunas	MP350	5058
Assistant Director	William Murphy	MP345	4428
Executive Asst., Research & Planning	Wendy Chin	MP350	5568

Managers

Applications Support & Advising	Don Gibson	MP350	7331
Communications & Field Service	Norman Housley	MP350	4967
Consulting & Information Services/ Faculty Liaison	Dr. Frank Spitzer	MP350	4619
Facilities Management	Terry Wood	MP350	7130
Operations	Dr. Bob Chambers	MP350	7092
Systems	Bill Lauriston	MP350	3579
User Accounting Services	William Murphy	MP345	4428

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If you wish to have your name and/or address added, changed or deleted from our Newsletter mailing list, please complete this form.

Please ☐ add

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My phone number is:

Comments on this issue of *COMPUTERNEWS*

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